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ST. LOUIS DISTRICT CULTURAL RESOURCE MANAGEMENT REPORT NUMBER 8

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**Shallowly Buried Archaeological Deposits and
Geologic Context: Archaeological Survey in the Eldred
and Spankey Drainage and Levee District, Greene
County, Illinois**

Contract No. DACW43-82-M-0984

by
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**US Army Corps
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St. Louis District

FEBRUARY 1984

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) SHALLOWLY BURIED ARCHAEOLOGICAL DEPOSITS AND GEOLOGIC CONTENT: ARCHAEOLOGICAL SURVEY IN THE ELDRED AND SPANKEY DRAINAGE AND LEVEE DISTRICT, GREENE COUNTY, ILLINOIS.		5. TYPE OF REPORT & PERIOD COVERED
7. AUTHOR(s) Harold Hassen and Edwin R. Hajic		6. PERFORMING ORG. REPORT NUMBER SLD CRM REPORT 8
9. PERFORMING ORGANIZATION NAME AND ADDRESS Center for American Archeology P.O. Box 20 Kampsville, IL 62053		8. CONTRACT OR GRANT NUMBER(s) DACW43-82-M-0984
11. CONTROLLING OFFICE NAME AND ADDRESS U.S. ARMY ENGINEER DISTRICT, ST. LOUIS 1222 SPRUCE STREET ST. LOUIS, MISSOURI 63103-2833		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) N/A		12. REPORT DATE February 1984
		13. NUMBER OF PAGES 53
		15. SECURITY CLASS. (of this report) unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for release; distribution unlimited		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number)		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The Contract Archeology Program, Center for American Archeology conducted an archeological survey of six interior drainage ditches within the Eldred and Spankey Drainage and Levee District, Greene County, Illinois. The survey was designed to locate surface cultural deposits 38 m on either side of the drainage ditches. Field techniques included pedestrian walkover and examination of exposed drainage ditch profiles. Two archeological sites were identified. The Twin Ditch site was newly discovered. The Voiles site was		

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**US Army Corps
of Engineers**

St. Louis District

February 1984

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ABSTRACT

→ The Contract Archeology Program, Center for American Archeology conducted an archeological survey of six interior drainage ditches within the Eldred and Spankey Drainage and Levee District, Greene County, Illinois. The survey was designed to locate surface cultural deposits 38 m on either side of the drainage ditches. Field techniques included pedestrian walkover and examination of exposed drainage ditch profiles. Two archeological sites were identified. The Twin Ditch site was newly discovered. The Voiles site was previously identified during a 1977 survey of the Eldred and Spankey district. Additional archeological investigations are recommended at the Twin Ditch site prior to any construction at that location. The testing would determine the eligibility of the site for nomination onto the National Register of Historic Places.

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Acknowledgements

The cooperation from farmers and landowners whose fields were surveyed is greatly appreciated. Terry Norris and George Knight, Army Corps of Engineers, St. Louis District, provided technical assistance and support. Their interest in lower Illinois River valley prehistory is appreciated. Michael Wiant participated in the examination of the cultural artifacts and provided useful insights into the overall interpretation. Howard Winters examined and commented on the projectile point assemblage. Frieda Odell-Vereecken illustrated all the figures. Marjorie Schroeder typed the manuscript.

CHAPTER 1

Introduction

In 1980 the Army Corps of Engineers, St. Louis District, contracted with the Contract Archeology Program, Center for American Archeology to conduct a series of cultural resource surveys and Holocene geomorphological studies along the lower Illinois River valley floodplain. These projects were initiated as part of a comprehensive flood control study by the Army Corps of Engineers.

This report presents the results of a cultural resource survey along selected portions of the Eldred and Spankey Drainage and Levee District, Greene County, Illinois. The Eldred and Spankey Drainage and Levee District is located on the east bank of the Illinois River in Greene County between river miles 24 and 32 (Figure 1). The project area totals approximately 150 ha (370 acres) and consists of the ground surface within 38 m (125 ft) on either side of the centerline for 23 existing or proposed interior drainage ditches/borrow pits. The Army Corps of Engineers, St. Louis District, requested an intensive surface survey of this area to determine archeological site locations and to provide preliminary archeological resource evaluations. The archeological work was necessary since the Corps of Engineers was planning to expand the drainage ditches and to recover borrow.

Field examination and recovery of archeological materials identified during the survey suggests site disturbance occurred at the Twin Ditch site during construction of the original ditches. It is anticipated the information presented in this report will assist the Army Corps of Engineers in planning the protection of archeological resources during planned levee and drainage ditch construction and maintenance. Results from the survey presented in Chapter 6 provide a valuable addition to ongoing research around two primary goals: 1) the compilation of a master inventory for prehistoric and early historic aboriginal sites, and 2) to describe and explain changes through time in Prehistoric settlement and subsistence strategies.

Specifically, the survey was designed to provide the following:

1. locate and map surface prehistoric and early historic habitation and mortuary sites,
2. collect culturally diagnostic material and/or retouched and use modified artifacts,
3. provide descriptions of collected assemblage,
4. provide recommendations regarding future archeological investigations within the survey areas.

In accordance with the Scope of work developed by the Corps of Engineers, this report is primarily descriptive. However, general interpretations and their implications for future archeological investigations are provided.

The field survey began in April 1982 and stopped in June 1982, prior to completion. Due to a continuing inability to gain access to approximately 33% of the survey area, the field portion of the project was eventually terminated in the winter, 1983. Consequently only six of the original 23 ditches were surveyed, totaling approximately 47 ha (117 acres). Only four existing or proposed ditches were completely surveyed.

Archeological materials (lithic artifacts) were recovered from eight separate locations. Whether these areas represent eight separate archeological sites or a continuous scatter of material will be discussed in Chapter 6.

The field survey and analysis was conducted under the direction of Dr. Harold Hassen. James M. Batura and Frank Cowan conducted the fieldwork. Laboratory processing including washing, tabulation and curation was conducted by James Batura with assistance provided by Marilyn J. Bender. Artifact identification was conducted by James Batura and Harold Hassen.

All materials and records from the survey are filed and curated in the archeological repository and Contract Program Office at Kampsville, Illinois. These materials are available to professional archeologists for research purposes by contacting the Contract Archeology Program.

CHAPTER 2

Study Goals and Limitations

Goals

The cultural resource survey along selected interior drainages of the Eldred and Spankey Drainage and Levee District was designed according to specific aims established by the Army Corps of Engineers, St. Louis District. The intent of this report is to document the presence of archeological material within the survey area and to provide an evaluation of sites and recovered artifact assemblages. In addition, recommendations on the future management of the cultural resources are provided. Despite the restricted focus, evaluations of sites and recovered artifact assemblages necessitates that analysis is conducted within a broader regional framework (Goodyear, Raab and Klinger 1978).

Documenting changes in land use and resource procurement and utilization within the lower Illinois River drainage is a major focus of ongoing research conducted by the Center for American Archeology.

Information obtained from the Eldred and Spankey Drainage and Levee District survey can contribute to these studies in four major ways:

1. Improve our understanding of the distribution of sites within a particular landscape type in the region.

The spatial extent of the present study compliments previous surveys within the Eldred and Spankey Drainage and Levee District. The Nine-Foot Channel survey (Farnsworth 1976) focused on the Illinois River shoreline. The Eldred and Spankey Drainage and Levee District survey (Farnsworth 1977) was restricted to a narrow corridor adjacent to the Illinois River channel levee, and the levees situated west and north of Hurricane Creek and north of Macoupin Creek. The present study focuses on the low lying interior floodplain and represents an area that has not yet been systematically surveyed. Thus there is an opportunity to broaden knowledge on where sites are and are not located on the landscape.

2. Improve our understanding of the utilization of the wider regional landscape during specific cultural periods in the

prehistory of the westcentral Illinois.

The Eldred and Spankey Drainage and Levee District survey, will provide an additional perspective on the use of the Illinois River drainage by specific prehistoric groups. Previous studies along the Illinois River shoreline and the dissected and interior uplands illustrate differential utilization of the landscape by Archaic and Woodland peoples. The distribution, diversity and absence of sites within the interior floodplain will contribute toward modeling changes in settlement-subsistence strategies. The present survey provides an opportunity to examine how particular cultural groups use this specific area and how use of this area changed through time.

3. Improve our understanding of the nature and distribution of small limited activity sites across the landscape.

The goal of the survey is to identify the presence of archeological sites. Regardless of their extent, all sites are recorded. Frequently, small, limited activity sites fail to receive the attention usually accorded larger, more complex, multiple activity sites. This is unfortunate since the smaller, less complex sites are equally informative and important.

If prehistoric resource procurement, technology, and social interaction are to be understood it is essential that the character and distribution of all sites are evaluated. The presence of small sites within the survey area provides an opportunity to identify and evaluate site types that will add greater dimension to settlement-subsistence studies.

4. Improve upon existing models regarding Holocene floodplain evolution and the potential for encountering surface and buried sites.

Recent studies have discussed the Holocene evolution of the lower Illinois Valley floodplain (Hajic and Hassen 1980; Hajic 1981a&b; Hajic and Styles 1982). Interpretations have been proposed regarding changing depositional environments, effects of climatic fluctuations and the development of Illinois River and secondary stream channel stability. These models are based on an assessment of surface landforms, subsurface geology and

distribution of surface archeological sites.

The potential for buried archeological deposits within the survey area has been classified as low (Hajic and Hassen 1980). The presence of meander scars and historic lakes suggests that previously, older channels and contemporary or younger backwater areas were present in most of the lowlying floodplain areas for approximately the last 3000 years (Hajic 1983). However, few archeological or geomorphic investigations have occurred in these areas. During the present study, the examination of ditch profiles and dredged material surface deposits provides an opportunity to assess the occurrence of shallow subsurface cultural deposits in an area previously considered unsuitable for occupation because it is an old lake bed.

Limitations

The cultural resource survey in the Eldred and Spankey Drainage and Levee District was restricted to surface reconnaissance. A number of factors can preclude discovery of all sites when only surface reconnaissance techniques are used, and can impede evaluation of specific site integrity. Those factors include: surface visibility, sedimentation and site burial, plowing and modern disturbance, collection bias and amateur collectors.

1. To locate surface sites it is necessary to view a surface that is not obscured. The survey occurred in cultivated fields and surface visibility was good. However, the survey corridor was relatively narrow and most of the surfaces were in fact covered with dredged deposited materials. The presence of these materials prevented an examination of the original surface.
2. Site burial. Certain topographic features can reduce the ability to locate sites. Geomorphological sedimentation such as alluvial and colluvial deposits may bury sites. Except for the possibility of surface materials buried underneath the dredged deposits, the presence of exposed ditch profiles and the unobscured view of the dredged deposits, suggests it is unlikely that extensive shallowly buried cultural deposits were undetected.

3. Plowing and dredging. The combination of plowing and dredging will affect the horizontal and vertical distribution of artifacts as they appear on the surface. Depending on the depth of the dredged deposits, plowing and erosion can result in the mixing of younger and older cultural deposits.
4. Collection bias. Once a site is identified in the field, a number of factors contribute toward creating potential bias in the types and quantity of recovered artifacts (Goodyear, House and Ackerly 1979). Despite similar training the ability of surveyors to consistently perform during an entire day will vary under different weather conditions. For example, at the end of a hot day an ability to accurately recognize dark colored ceramics within a dark soil matrix may diminish. The purpose of the survey is to locate sites, identify temporal components and to determine spatial dimensions. Financial and time constraints required the focus at each site to be the recovery of those artifacts providing the most critical information. Consequently, only temporally diagnostic artifacts, retouched and otherwise shaped lithics, ceramics and subsistence remains were recovered. The density and spatial dimensions of the nonretouched lithics were assessed in the field.
5. Amateur collectors. The effect of collectors removing artifacts from sites cannot be accurately determined. Nevertheless, collectors are known to frequent sites within the survey area and it would be expected that diagnostic projectile points, exotic items and/or ceramics have been removed from the archeological record.

Items 1 - 5 represent constraints affecting either the location or evaluation of archeological sites using surface reconnaissance. To fully assess the potential disturbance or possible burial or archeological deposits, subsurface test excavations are required. Subsurface testing is specifically designed to address the disturbance issue, to investigate preservation of subsurface remains, and to assess the overall significance of each site from which a determination of eligibility for inclusion onto the National Register can be made.

As with any archeological survey that precedes a construction

project, the Eldred and Spankey Drainage and Levee District has been set up with archeologically-artificial study boundaries. Unlike items 1 - 5 above which may create disturbances or bury cultural deposits, the spatial constraints of the survey affect the interpretation of the social context of sites found. Thus, the relationships between undetected sites outside the survey boundaries directly related to sites located within the study area remains unknown.

CHAPTER 3

Physical Setting

Geomorphology

The Eldred and Spankey Drainage and Levee District is situated within the eastern floodplain of the Illinois River. Four and one-half kilometers wide at the northern end, the floodplain narrows to 3.3 km to the south. The northern boundary is marked by the Farrow private levee, approximately 9 km south of Apple Creek. The modern channel for Macoupin Creek represents the southern boundary (Figure 2).

Shallow subsurface geological and geomorphological investigations have been conducted in the Eldred and Spankey Drainage and Levee District (Hajic and Hassen 1980). Since the Eldred study, three other drainage and levee districts have been geologically investigated in the lower Illinois Valley to provide predictive capabilities for buried archeological site locations based upon an evolving geologic history for the Illinois valley (Hajic 1981a,b, 1983). Twin Ditch site profiles along with stratigraphic data from district studies, miscellaneous geological investigations, and new radiocarbon dates (Hajic 1983) provide the basis for the contextual interpretations of this limited study.

Geomorphic features of the study area are illustrated in Figure 2. Coalescing Holocene alluvial fans overlie a continuous remnant of the Keach School terrace along the eastern valley margin. The Keach School is the lowest, and therefore youngest, terrace in the lower Illinois Valley (Butzer 1977), and is developed predominantly on sandy outwash of the Henry Formation (Willman and Frye 1970), but may locally overlie lacustrine silt and clay (Hajic 1983). The Keach School was formed shortly after ca. 9950 B.P. when the Illinois River began a period incision (Hajic and Styles 1982; Hajic 1983; Styles n.d.). West of the Keach School is a lowlying floodbasin historically occupied by Shallow Potatoe Prairie Lake. The soils in the lake bed include McFain silty clay and Titus silty clay loam. South of the lake is a small Keach School remnant.

Extensive coring of lower Illinois River floodplain subsurface sediments has led to the definition of three informal members (preliminary

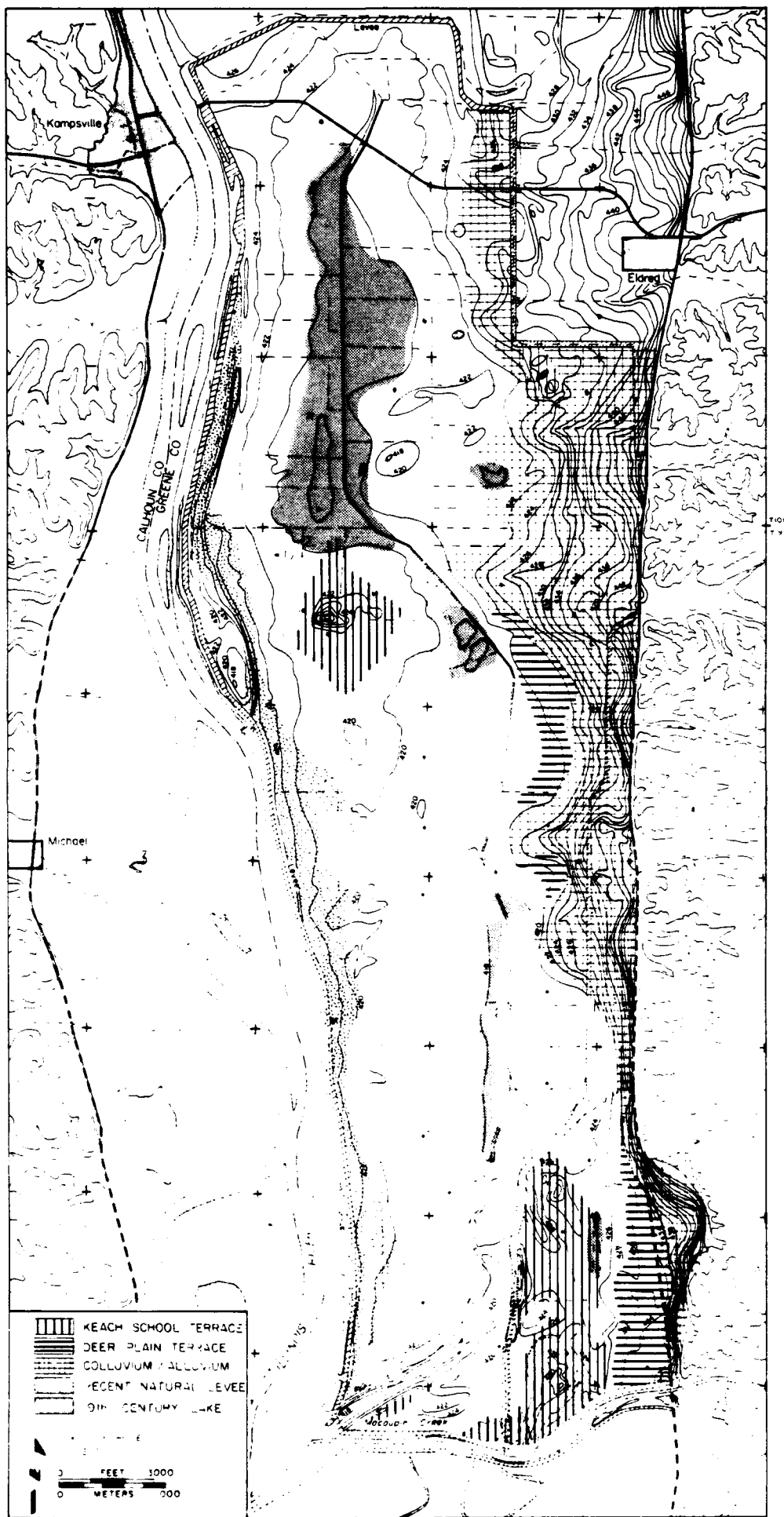


Figure 2 Geomorphic Features, Modified from Rubey (1952) and Butzer (1977)
 Contour Base is from U.S. War Department Maps, 1944

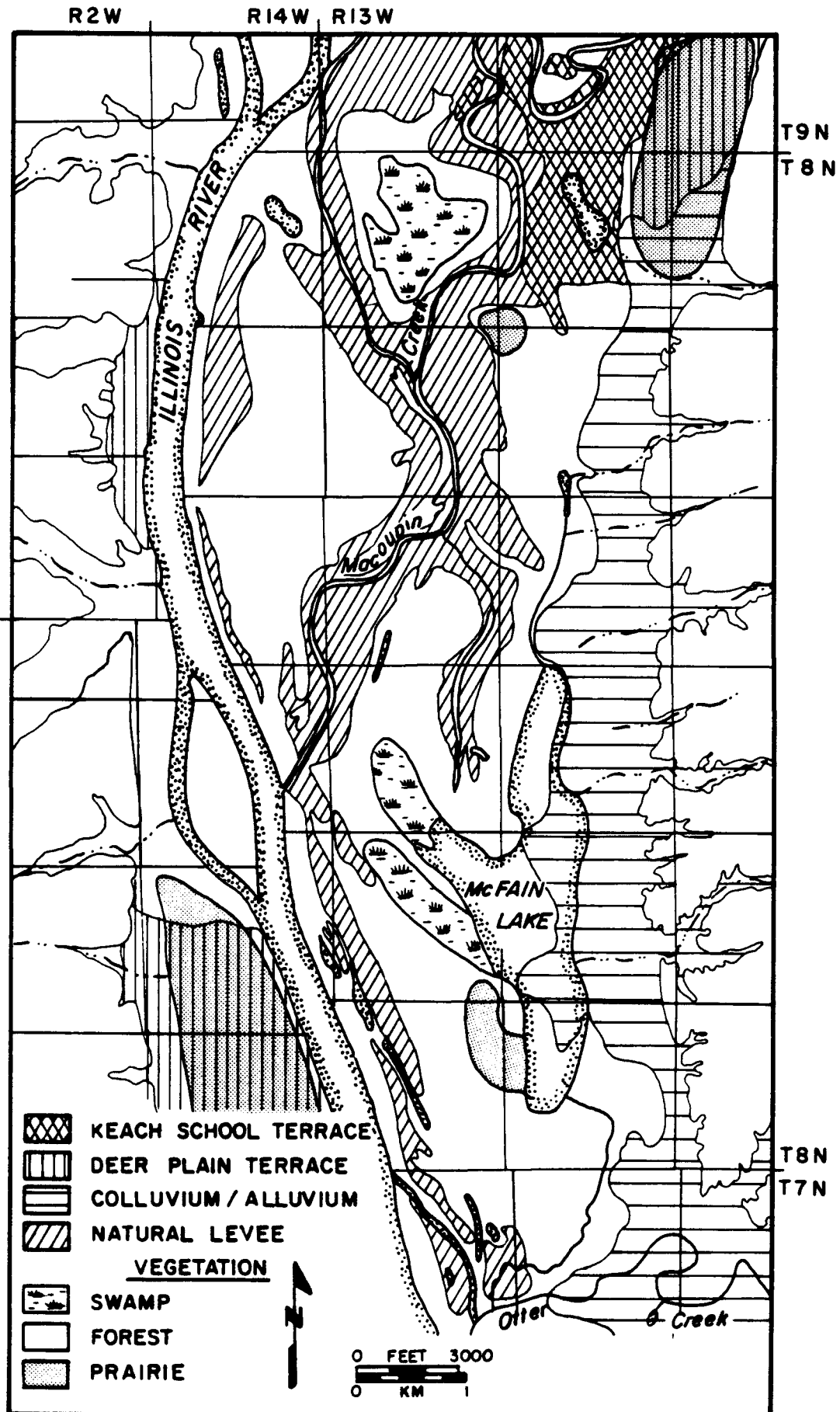
field designation) of the Cahokia Alluvium. These include the Hartwell Member, the McFain Member and the Buck Lake Member (Hajic 1983). Filling several very early Holocene paleochannels is the Hartwell member, a generally thick slackwater deposit. Radiocarbon dates for the unit range from 5800 B.P. at the base to 3650 B.P. near the top. The McFain Member unconformably overlies the Hartwell. It is a thin tabular unit probably representing the lag deposit of an erosional event. It is noticeably coarser than the underlying Hartwell and overlying unit, and is further characterized by an abundance of gastropod and mollusc shell. A shell date of 2890 B.P. (ISGS-143) (Coleman 1974) was obtained from the unit. McFain sediments are overlain by the Buck Lake Member, a fine-textured unit deposited over roughly the last 3000 years in natural levee, floodbasin lake (such as Potatoe Prairie Lake) and floodbasin drainageway environments. The Keach School in the Eldred and Spankey Drainage and Levee District gradually grades to the west where it eventually becomes buried by the Buck Lake Member.

Vegetation

The present vegetation configuration in the Eldred District varies considerably from presettlement time. Levee construction, ditch excavation and farming have effectively altered most vestiges of presettlement vegetation patterns. However, early nineteenth century vegetation patterns for the Eldred and Spankey Drainage and Levee District have been interpolated by Asch and Asch (1982) from U.S. Government land surveys conducted between 1816 and 1819 (Figure 3). Valley bottomlands were a mosaic of prairies and forests whose diversity is largely a function of topography. Even microtopographic differences may variably effect local edaphic conditions, susceptibility and duration of flooding, degree of alluviation or erosion, light intensity, and vulnerability to forest and prairie fires.

According to Asch and Asch (1982) early nineteenth century bottomland forests were located on islands, along river shorelines, adjacent to secondary creek channels, in some wetlands and along valley margins on alluvial fans and colluvial slopes. Bottomland forests vary in composition based on local conditions. These differences characterize the

Figure 3. Early nineteenth century vegetation of the Eldred Levee District. Early county atlases show no connection between Potatoe Prairie Lake and the unnamed lake to the southeast. The Woermann topographic maps (1902-04) suggest that there may have been a connection between the lakes at time of high water as illustrated above (from Asch and Asch 1982).



...gradient from wetter to more mesic environments and from pioneer to more stable successional stages ...(the) first, willows, usually occurring as a narrow band along the river banks and slough margins; next, silver maple, cottonwood, boxelder, and American elm; and finally pin oak. The mesic end of the range has greater diversity and includes trees such as pecan, sycamore, black walnut, sugarberry, honey locust, and shellbark hickory. (Asch and Asch 1982:12).

Bottomlands not occupied by forests were either prairie or wetlands. Poorly drained alluvium probably supported a sloughgrass association, while terraces supported a big bluestem association (Asch and Asch 1982). The distribution of prairie and forest is hypothesized to be largely a function of the susceptibility to sedimentation and the duration of flooding. Rapid sedimentation and/or a long flood season would have provided a competitive edge to forest development.

Two primary historical factors complicate projection of early nineteenth century vegetation patterns into prehistory. One is the documented changes in midwestern climate throughout the Holocene (cf. King, 1981). The second, and perhaps more important, is the dynamism of the Illinois River. While the present vegetational diversity of the valley bottomlands is largely a result of topographic variability, Holocene paleolandscapes have in large part themselves varied throughout prehistory (cf. Hajic 1983; Hajic and Hassen 1980). While certain terrace surfaces may have remained exposed throughout the Holocene, areas now functioning as floodbasins may have undergone extensive landscape evolution and remodeling.

CHAPTER 4

Previous Archeological Studies

Previous information on site distribution and associated artifact assemblages within the Eldred and Spankey Drainage and Levee District is reviewed and synthesized below. Figure 4 illustrates the location of these and other archeological projects conducted in the lower Illinois River valley. A review of archeological projects within other levee districts to the north and south can be found in Hassen and Batura 1983. To provide a broad cultural perspective encompassing the entire lower Illinois River valley through time and correlated with regional cultural development throughout the midwest is beyond the scope of this study. For a synthesis of midwest prehistory see Griffin 1967, Ford 1974, Brown 1977 and Stoltzman 1978; see Koski 1981 for a review of lower Illinois River drainage prehistory.

Nine-Foot Channel (Farnsworth 1976)

This survey was initiated as a result of planned maintenance work on the Illinois River navigation channel by the Army Corps of Engineers, St. Louis District. The Purpose was to identify surface sites within a 91 m wide corridor, on both the east and west banks of the Illinois River. The survey extended from Illinois River Miles 1-80 and included the Eldred and Spankey Drainage and Levee District. Although 89 prehistoric and five historic sites were identified, none are situated in the Eldred and Spankey Drainage and Levee District.

Eldred and Spankey Drainage and Levee District Survey (Farnsworth 1977)

Twenty-six (20 prehistoric and six historic) sites were identified within a survey corridor parallel to the artificial levees. Survey techniques included walking zig-zag transects 10 m (30 ft) to 25 m (75 ft) apart. When surface visibility was obscured by vegetation shovel testing, soil augering or core sampling was used at 8 m (25 ft) intervals.

The earliest archeological material dates to a single component Middle Archaic site. Farnsworth suggests earlier material may have been destroyed or buried by shifts in the Illinois River channel. The density

of floodplain settlement away from the bluffbase during Late Archaic and Woodland times was high.

Along the artificial levee interior five sites were identified. Four sites exhibit multiple components based on the recovery of diagnostic artifacts. The sites are small, with one exception, and contain a light density of lithic material. Two sites show a high diversity of tools indicating a range of activities including tool production and maintenance and food processing.

The other three sites have a limited range of tool types, are multi-component and probably represent multiple occupations at extractive or processing camps.

Most of the Prehistoric sites in the southern portion of the Eldred and Spankey Drainage and Levee District along Macoupin Creek exhibit cultural material across a larger site area. These sites are also probably extractive or processing camps. However, two sites are quite large and contain a wide diversity of tool types. These sites probably represent a greater range of activities with artifacts having been discarded and/or lost during a more extended occupation(s).

Seven prehistoric and five historic sites were judged as neither significant nor requiring additional archeological investigation. Recommendations for archeological investigations at the remaining sites include a range of activities from construction monitoring to full-scale mitigation. One site identified during the 1977 survey is located within the present survey boundary. This site - the Voiles site - is discussed in detail below.

Shallow Subsurface Geology, Geomorphology and Limited Cultural Resource Investigations (Hajic and Hassen 1980, Hajic 1981a,b)

Between 1980 and 1982 a series of shallow subsurface geologic, geomorphic and limited surface cultural resource investigations were conducted at the Eldred and Spankey Nutwood and Hartwell Drainage and Levee districts. These studies, requested by the Army Corps of Engineers, St. Louis District, were designed to determine the potential for encountering buried archeological deposits.

Soil coring across a number of transects provided an opportunity to identify and interpret shallow subsurface sedimentary units, geomorphic

features and soils. These geologic and geomorphic investigations occurred in combination with an assessment of surface archeological materials. Based on these studies, the following conclusions were presented:

1. Areas of the highest potential are those where rapid burial in a relatively low energy environment may have occurred during the Holocene. Colluvium, alluvial fans and natural levees meet these requirements. Within the bluffbase fans archeological deposits as old as the Paleo-Indian period may be preserved. The natural levees along the present Illinois River channel may contain deposits earlier than the Middle Woodland while the interior natural levees along the old Macoupin Creek channel could preserve deposits as old as the Late Archaic.
2. The low potential areas represent locales deemed too wet for human occupation due to seasonal inundation. These locations are represented within the lowlying interior floodplain. However, locally high areas may contain cultural materials covered by either flood or lacustrine sediments. The present survey appears to be situated in this context.
3. Areas having no potential for buried deposits are represented by the outcropping of the terminal Pleistocene Keach School and Deer Plain terraces. These surfaces may contain deposits as early as the Paleo period. However, terrace surface sites may be buried by later alluvial fan sedimentation.

CHAPTER 5

Organization of Fieldwork and Laboratory Procedures

Fieldwork

The survey was designed to locate surface archeological material within 38 m (125 ft) on either side of the centerline for 23 existing or proposed interior drainage ditches/borrow areas. The entire survey area was situated in cultivated fields, obviating the need for shovel testing.

Since the survey was initiated during the late spring, surface visibility was good, with beans and corn only a few centimeters high. Transect intervals were approximately 6 m.

From the original 23 existing or proposed drainage ditch/borrow areas, only six were actually surveyed. An inability to gain permission from the landowners prevented access to the remaining ditches. Ditch number 1 was examined only on the northern portion, while at ditch number 6 the survey was restricted to the southern portion (Figure 1). When not obscured by vegetation, ditch profiles were examined.

Differences in artifact densities, presence of features, differential distribution of various materials and preservation of fragile remains (e.g. bone, shell and ceramics) as well as information on the environmental context for each site were recorded. Sketch maps were prepared for all sites and their locations were plotted on aerial photographs and U.S.G.S. quadrangle maps.

Whenever possible landowners and/or tenants were interviewed for information on previously unreported archeological finds and/or sites. Although some personal collections were examined, the contexts of the specimens could not be verified as originating from the survey area.

Separate field walkover forms were completed for individual segments of the drainage ditches. When archeological materials were encountered the spatial dimensions were marked with surveyors' flags. After the area was walked, the surface limits were determined by the distribution of the archeological material. Separate site survey forms were then filled out for each area. All the observed retouched chipped stone and modified ground stone artifacts were collected along with a sample of non-retouched

lithic material.

Laboratory Procedures

A literature search was conducted to assemble information on known archeological sites in or near the Eldred/Spankey Drainage and Levee District. Both the Center for American Archeology and the Illinois Archaeological Survey site files were examined. Information obtained from these files concerning site distribution and artifact assemblages has been incorporated for comparative purposes in Chapter 4.

County plat books and U.S.G.S. maps were examined to determine the potential for encountering historic Archeological sites. No historic sites were identified within the survey area.

All materials collected during the 1980-1981 field survey were washed, labeled, tabulated and curated according to standard Contract Archeology Program procedures (see Center for American Archeology n.d.).

Projectile points are traditionally used as temporal markers based on technological and morphological criteria. Unfortunately, there is a paucity of projectile points within the lower Illinois River valley that are closely correlated with known C-14 dates. Consequently, projectile points are tentatively chronologically arranged based on attributes exhibiting a range of variation within and between time units. In the absence of strict temporal controls it is unclear whether some attributes are temporally and/or spatially significant.

The following definitions were applied to the artifacts discussed in this report:

Projectile point - pointed bifaces and unifaces exhibiting a hafting element

Biface - presence of flake scars on both surfaces

Uniface - presence of flake scars on only one surface

Blocky (scatter) - sharp angular edges; presence of negative flake scarring; absence of platform

Primary flake - 100% cortex on dorsal surface; no flake scars on dorsal surface

Secondary flake - some cortex but less than 100%; presence of at least one negative flake scar on dorsal surface

Tertiary flake - lacks cortex; will exhibit dorsal flake

scarring

Bifacial thinning flake - lacks cortex; the platform forms an acute angle and overhanging lip with ventral surface and exhibits multiple facets

Drill - pronounced roughly parallel sided projection, length at least one-third total artifact length, bifacial edge retouch or projection

Metate - ground surface, characterized by concave grooves on one or both surfaces

Hammerstone - exhibits evidence of pecking or battering

CHAPTER 6

Results

The survey of the interior drainages within the Eldred and Spankey Drainage and Levee District identified two sites (Figure 5). The Twin Ditch site is previously unrecorded, the second represents a re-visit to the Voiles site (Farnsworth 1977).

Twin Ditch Site

The Twin Ditch (11-Ge-146) is characterized by seven areas of lithic concentration (Figure 6). These areas are situated at the intersection of north/south and east/west running ditches. During the survey these areas were categorized as separate archeological sites. However, based on an evaluation of the geomorphological context it is concluded that a single, multicomponent, shallowly buried site is represented. This buried surface has been recognized in other drainage and levee districts (Hajic 1983) and is here informally called the Columbiana buried surface. It is formed on the Henry Formation. The Keach School gradually grades down to the Columbiana. The association of prehistoric archeological debris with the Columbiana indicates it was a former floodplain or terrace. Debris was located where ditch excavation in the Patatoe Prairie Lake area was at depths great enough to intersect this geomorphic surface (Figure 7).

Unit 1 (Figure 6) produced the largest quantity of debris and is located where a major east/west trending ditch was excavated to considerable depths along its entire extent. Ditch walls were examined for stratigraphic and cultural relationships. Cultural material is observable within the exposed ditch profile at Unit 1 (Figure 6). A large biface was recovered from this profile at a depth of approximately 1 m below the original ground surface (the original ground surface is presently buried by dredge deposits). This site appears to lie on a preserved high area of the Columbiana surface unaffected by the McFain erosional event. Moving west from Unit 1, cultural debris in dredged deposits abruptly decreases and is replaced by gastropod and mollusc shells of the McFain member.

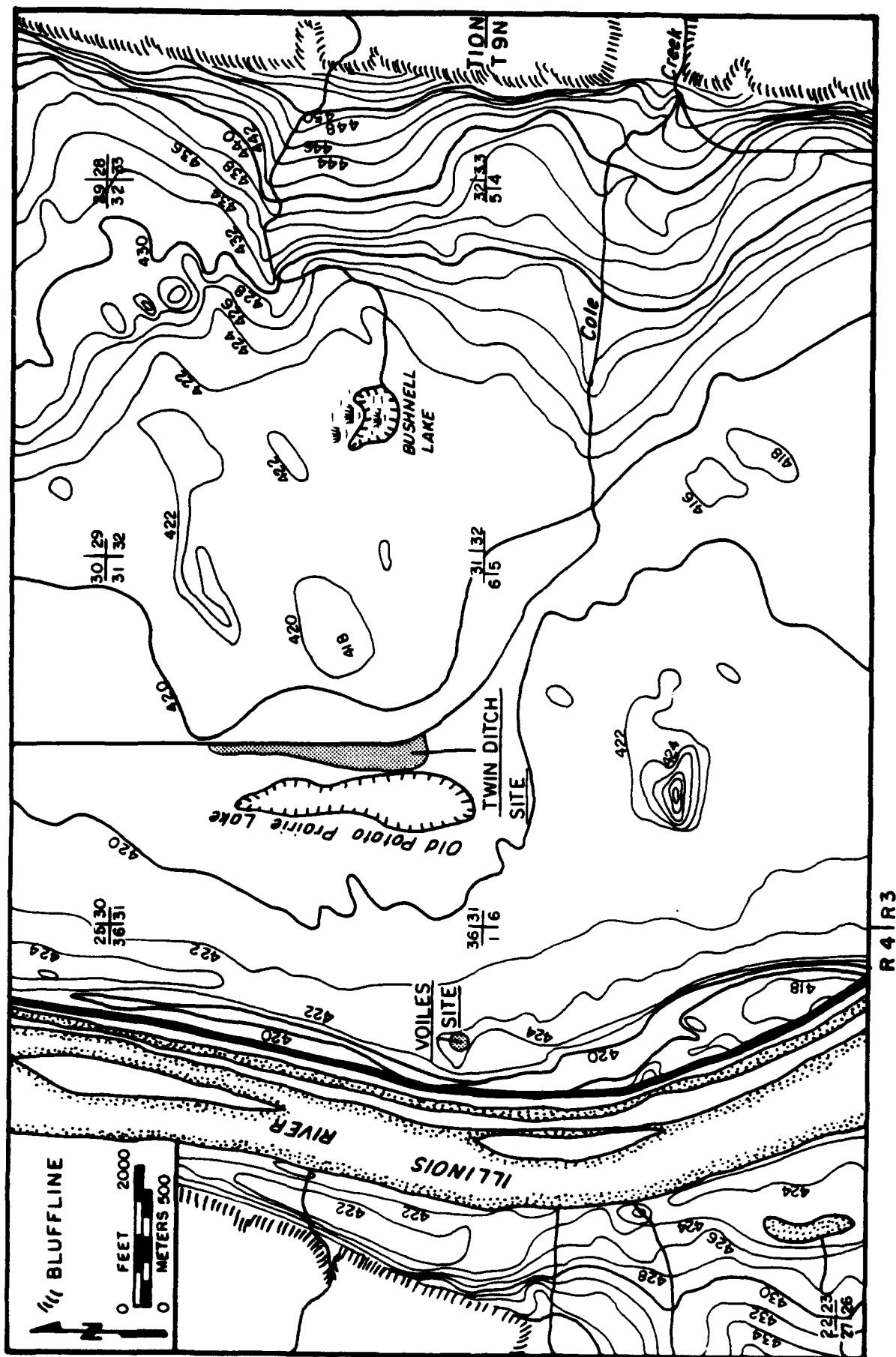


Figure 5: Location of the Twin Ditch and Voiles Sites
Contour Base from U.S. War Department Maps, 1944.

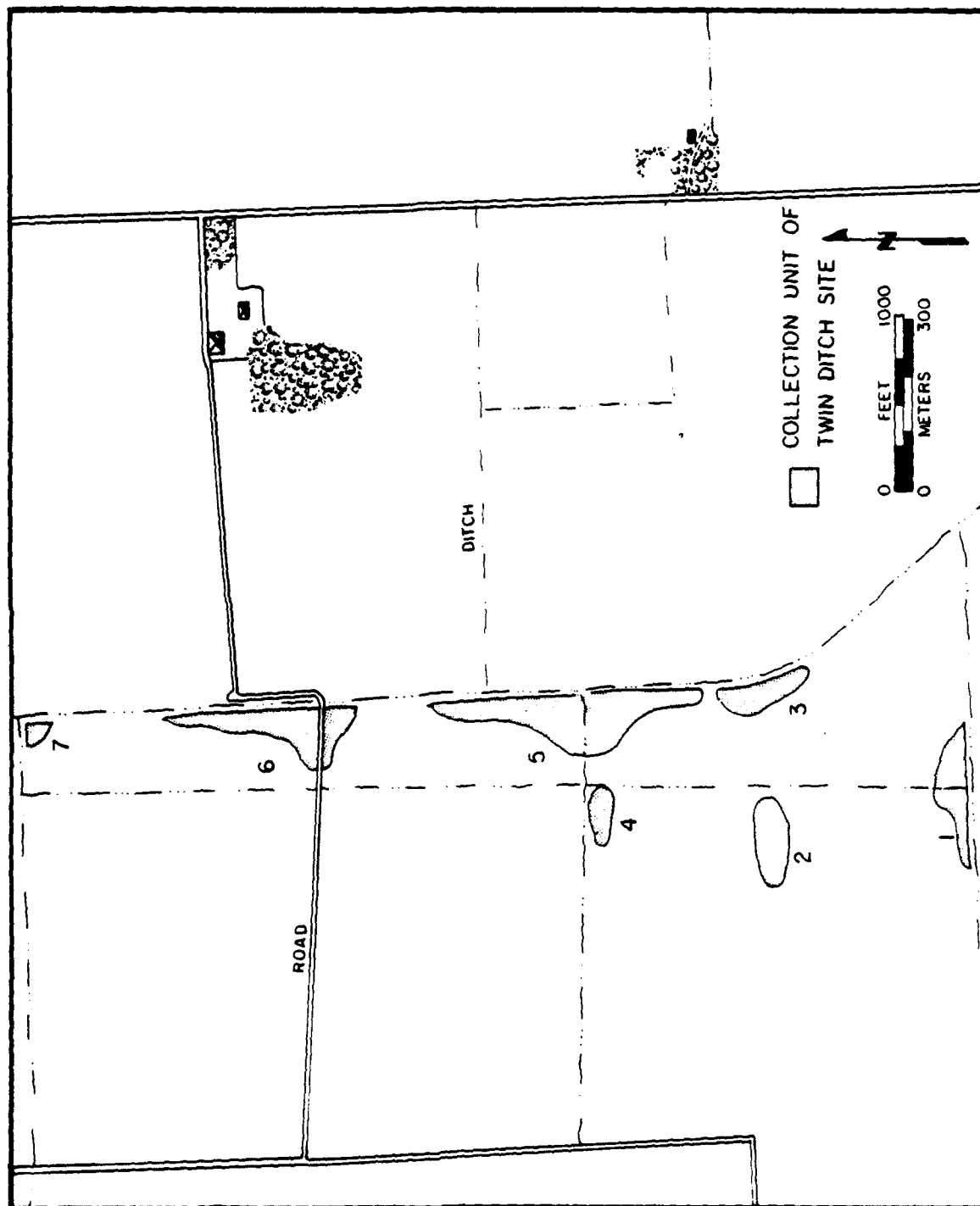


Figure 6. Collection Units, Twin Ditch Site



**Schematic Profile
Buried Surface**

Among the drainage and levee district studies, the McFain was found to have the highest sand content in the Eldred and Spanky Drainage and Levee District (Hajic 1983). It is probable that the elevations of McFain erosion and the Columbiana surface roughly coincided in the Eldred and Spanky Drainage and Levee District. The McFain event effectively reworked most areas of the Columbiana surface developed on sandy Henry Formation deposits, as well as the margins of the Keach School Terrace.

At the Twin Ditch locality, cultural material is preserved above 126.5 m.a.s.l. The base of the McFain is at about 125.5 m.a.s.l. The areas of buried archeological deposits most likely correspond with preserved higher areas of the Columbia surface and the slopes between the Keach School and Columbiana. The localities indicated in Figure 6 most likely are areas of one large site excavated during dredging of the drainage ditch.

The Columbiana surface and McFain member at the Twin Ditch site are both buried by Buck Lake member sediments deposited in the local Potatoe Prairie Lake (Figure 7).

Considerable post-depositional mixing of cultural deposits on the Columbiana surface is likely as crayfish have actively burrowed the shallow bed of Potatoe Prairie Lake. Burrows are filled with mixtures of Buck Lake and Henry Formation sediments, and cultural debris. No distinct lithostratigraphic units were definable within culture bearing sediments.

As of this report, there are no radiocarbon dates associated directly with the Columbiana buried surface. The position of the Columbiana surface, lower than the Keach School Terrace, indicates it is younger than ca. 9950 B.P. The Columbiana probably formed shortly after the Keach School and is similarly related to a very early Holocene episode of downcutting in the lower Illinois. The presence of projectile points considered diagnostic of Early and Middle Archaic occupations indicates at least periodic exposure sometime between ca. 9500 and 4500 B.P., with river levels periodically below 125.5 m.a.s.l. during this time span.

One Belknap point was recovered from Unit 7. Although plentiful in survey collections, there are no well dated contexts for Belknap points in the lower Illinois valley. They are often associated with Early Woodland ceramics on natural levees of floodbasin drainageways (cf. Hajic 1983), but commonly are also considered a possible Late Archaic point style as

well. If associated with the Columbiana surface or the slope between the Keach School and Columbiana, the point indicates an exposure episode possibly as late as ca. 2400 B.P.

Voiles Site

The Voiles site (11-Ge-108) is a small site (1.5 ha) situated on a natural levee approximately 300 m east of the present Illinois River channel. The site was originally identified during the 1977 Eldred and Spankey Drainage and Levee District survey (Farnsworth 1977). In addition to a surface reconnaissance, the site was minimally tested with two 1 by 1 m units excavated. The excavations discovered a diffuse midden below the plowzone but no prehistoric features were observed.

Lithic Analysis

Table 1 summarizes the quantity and diversity of artifacts recovered from the Twin Ditch Site. The assemblage for the site is separated into the seven collection units to illustrate spatial differences (Figure 6). Prehistoric artifacts from each site were restricted to unretouched and retouched chipped stone and modified igneous materials. Ceramic artifacts were not observed.

Almost all the lithic artifacts are manufactured from locally available Burlington chert. This material exhibits good knapping quality and is available from numerous sources including bedrock outcroppings, weathered talus, and redeposited stream gravels (Meyers 1970). Burlington chert is characterized by a range of variation, sometimes similar in appearance to non-Burlington cherts. Until an extensive evaluation of Burlington chert is conducted it is possible that non-Burlington chert may have gone undetected in the assemblages reported in this study. Some artifacts are manufactured from non-Burlington chert. One artifact is apparently manufactured from a dark blue or black chert similar to a type reported from Northwestern Illinois (Birmingham and Van Dyke 1981).

The diversity of tool types (Table 1) indicates a range of activities including procurement, manufacturing, processing and maintenance. The most common artifact types are bifaces, projectile Points and unifaces. The high quantity of tertiary flakes compared to other flake categories, the presence of later stage bifaces and a lack of cortex on retouched

TABLE 1. SITE ARTIFACT SUMMARY

Twin Ditch Site								
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Total
Primary flake								0
Secondary flake	45		1		13	1		60
Tertiary flake	753	1	2	3	224	3	2	990
Bifacial thinning flake	6				1			7
Blocky	126			1	31			158
Projectile point	11					1	1	13
Biface	45			1	12			68
Uniface	8				3			11
Retouched flake	3					1		4
Drill	1							1
Metate	3							3
Hammerstone	1							1

Voiles Site

Tertiary flake	6
Blocky	2
Biface	1

artifacts indicates an emphasis on non-primary reduction. Bifacial artifacts occur in one of two categories. The first contains well thinned specimens exhibiting transverse breaks that are not re-worked. These items would appear to have been discarded during re-tooling. The second biface group is characterized by well worked, thick, narrow specimens. These tools may have been discarded after their use life was exhausted.

The unifaces are also divided into two categories. The first is represented by large, steeply retouched pieces. The worked edge occurs either on the side or end. The second group is comprised of large, thin flakes exhibiting edge retouch along the distal end. These edges are not steeply worked. Neither of the two uniface categories appear to be hafted tools.

Thirteen projectile points were recovered (Table 2, Plate 1 and 2). These artifacts are significant chronological markers because of documented temporal changes in morphology and technology. Three distinct time periods are represented (Early and Middle Archaic and Early Woodland). Early and Middle Archaic specimens dominate the assemblage. The projectile point identification is based on comparisons with dated assemblages from the Koster and Napoleon Hollow sites and other midwest projectile point references (Perino 1968, 1971; Conrad 1981; and Cook 1976).

Two grooved metates were recovered. One is heavily worn on both sides and exhibits pecking damage to one surface. The second is grooved on only one surface. An igneous artifact has been smoothed on both surfaces, neither of which exhibits a groove. Finally, a single non-chert hammerstone was recovered. This artifact exhibits extensive damage on multiple edges and surfaces.

Voiles Site

The assemblage collected from the Voiles site is comprised of a few tertiary flakes, two blocky non-retouched specimens and a single biface.

During the previous survey at this site, two Early Woodland Belknap projectile points, a Middle Woodland ceramic sherds, one unifacial tool and various chipping debris were collected (Farnsworth 1977).

TABLE 2. PROJECTILE POINTS - TWIN DITCH SITE

Cultural Affiliation	Point Type	Collection Unit	Plate Number
Early Archaic	Agate Basin	2-4	1-a
Early Archaic	Bifurcate Base	1-8	1-b
Early Archaic	Hardin	1-30	1-c
Early Archaic	Hardin Short Stem	1-4	1-d
Early Archaic	Expanding Stem	2-8	1-e
Early Archaic	Expanding Stem	1-1	1-f
Middle Archaic	Site-Notched	1-3	2-a
Middle Archaic	Site-Notched	3-1	2-b
Middle Archaic	Matanza	4-1	2-c
Middle Archaic	Matanza	1-4	2-d
Early Woodland	Contract Stem	5-1	2-e
Type Indeterminate		1-7	2-f
Type Indeterminate		1-2	2-g

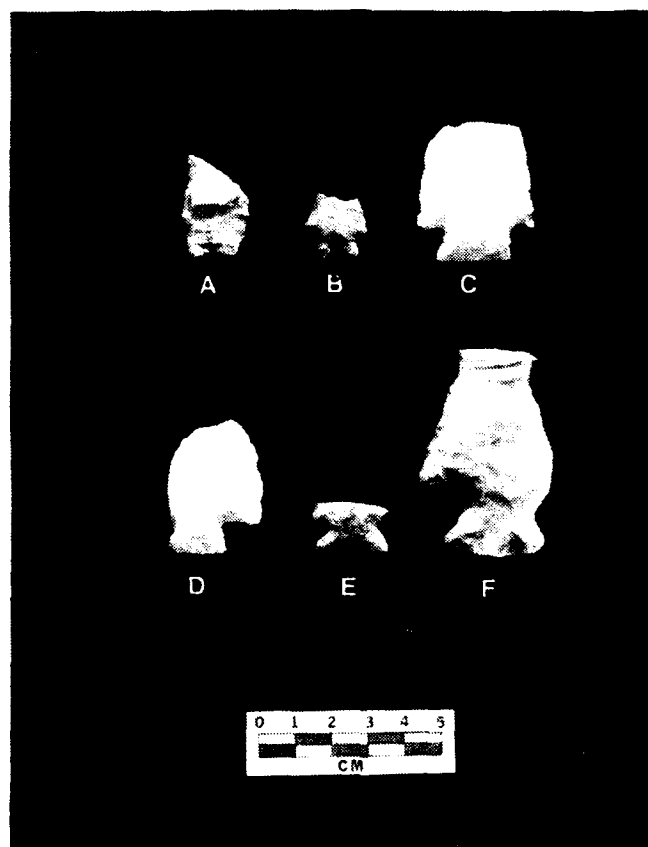


Plate 1: Agate Basin (a), Bifurcate base (b), Hardin (c), Hardin Short Stem (d), Early Archaic expanding stem (e, f).

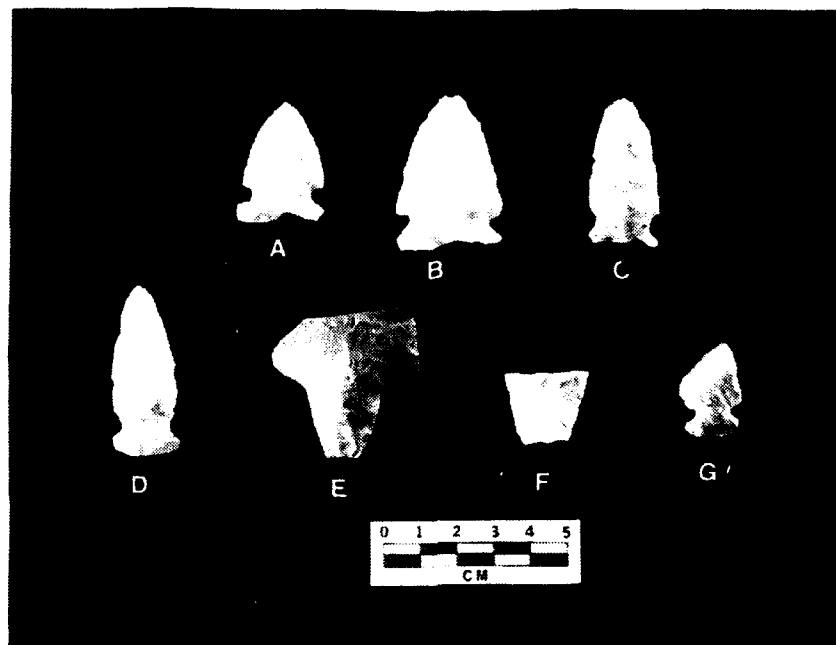


Plate 2: Middle Archaic side notch (a, b), Matanzas (c, d), Early Woodland contracting stem (e), Type Indeterminate (f, g).

Summary and Conclusions

The intent of this study is to assist the Army Corps of Engineers in planning future projects within the survey area. In addition to documenting the presence of two archeological sites, Chapter 2 discussed how the present study might contribute to long term objectives developed by the Center for American Archeology.

The goal of that research is to document and explain evolutionary changes in settlement and subsistence within the lower Illinois River drainage. The contributions of the present study toward this goal are evaluated below.

As indicated earlier, the Voiles site was first identified and reported during the 1977 Eldred survey (Farnsworth 1977). Based on the present survey the information contained in the 1977 report is still applicable. Consequently, the discussion below will focus on the Twin Ditch site. As stated earlier, the Twin Ditch site can contribute to a number of ongoing studies focusing on the lower Illinois River valley. They are:

1. Improve our understanding of the distribution of sites within a particular landscape in the region, and
2. Improve our understanding of the utilization of the wider regional landscape during specific cultural periods in the prehistory of westcentral Illinois.

The inability to gain access to the majority of fields originally proposed for the survey inhibits a detailed assessment of the survey results and regional implications.

Although only a small portion of the Twin Ditch site has been observed, its presence is important. Buried Archaic sites have been documented for a variety of locations including colluvial and alluvial fans, point bars, and areas adjacent to river channels (Anderson and Semken 1980; Broyles 1966, 1971; Butzer 1977, 1978; Chapman 1977, 1978; Wiant 1980, and Wiant, Hajic and Styles 1983). The Twin Ditch site potentially represents another locale, a shallowly buried terrace situated in the lowlying floodplain. The context of the Twin Ditch site adds an important dimension regarding the studying of Early and Middle Archaic settlement and subsistence. The site provides an opportunity for comparisons with other contemporary sites situated elsewhere in the

Illinois River valley, and can help identify settlement variation based on duration of occupation, site activities and access to and utilization of resources. Methodological issues based on comparisons of deeply buried and shallowly buried sites can also be addressed regarding site disturbance and preservatton.

3. Improve our understanding of the nature and distribution of small limited activity sites across the landscape.

At this time the complexity of the Twin Ditch site is unclear. Thus far, what is known about the Twin Ditch site is based on the variation in dredging depths that has resulted in isolated portions of the shallowly buried deposits being brought to the surface. The various time periods represented by temporally diagnostic artifacts and the range of tool categories identified prevents an assignment of site type at this time.

4. Improve upon existing models regarding Holocene floodplain evolution and the potential for encountering surface and buried sites.

As indicated in Chapter 4, the survey is located in an area previously identified as having a low potential for buried sites. This conclusion was based in part on a series of soil core transects situated throughout the Eldred and Spankey Drainage and Levee District. Since that time, geomorphology of additional levee districts have been studied. As discussed above, the presence of a shallowly buried surface (Columbiana) has now been identified.

The association of cultural materials with the Columbiana establishes the potential for shallowly buried deposits elsewhere. Whether these deposits are contained near the boundary with the McFain deposits is unclear at this time.

CHAPTER 7

Recommendations

At the time the Voiles site was first reported a series of recommendations were provided to the Corps of Engineers, St. Louis District (Farnsworth 1977). Information obtained from this survey does not necessitate any change in those original recommendations.

Presently, it is unknown whether the Twin Ditch site warrants National Register consideration. Therefore, it is recommended that prior to any construction, additional archeological investigations be undertaken to evaluate whether the site is eligible for inclusion onto the National Register of Historic Places.

Compliance with various Federal regulations requires that once an endangered site is identified, additional site evaluation studies are required to determine site significance and eligibility onto the National Register of Historic Places. Included among these regulations are Section 110 (a)(2), Section 106 and Section 100 (b) of the National Historic Preservation Act of 1966 (as amended 1980) and Executive Order 11593. Site evaluation studies are designed to Provide:

1. more accurate determination of site limits,
2. an assessment of subsurface preservation of fragile material remains,
3. a determination of the integrity of subsurface features and/or midden,
4. a more comprehensive determination of antiquity of the archeological assemblage, and
5. questions regarding within-site activities and function, and regional significance of the materials are also addressed.

Activities that may be included are:

1. topographic mapping of site,
2. systematic recovery of surface materials,
3. subsurface excavation,
4. soil coring and machine trenching for profiling the sedimentary/stratigraphic sequence and mapping buried cultural materials, and

5. machine stripping of plowzone for locating undisturbed archeological features, middens and artifacts.

If additional archeological testing determines a site exhibits no significance for local, regional or national prehistory or history then additional archeological investigations are not required. If sites are determined significant, then steps are taken to further document their National Register eligibility.

Because the Twin Ditch site is a shallowly buried rather than a surface site, it is recommended that soil coring be used to determine the extent of the Columbiana Terrace with association of cultural material. Because the site is shallowly buried, a series of test units in conjunction with soil coring should be excavated to determine:

1. the spatial extent of cultural deposits in association with the Columbiana Terrace, and
2. the degree of integrity and preservation of the cultural deposits.

Because of the spatial extent of the site already identified (Figure 7) and the diversity of tool categories and time periods represented, the likelihood that a spatially large and culturally complex site is present is high. Consequently, it may be more prudent for the Corps of Engineers to remove the area represented by the Twin Ditch site from consideration as a construction impact area.

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APPENDIX A
SCOPE OF WORK

A Cultural Resource Survey of
Selected Portions of the Eldred
and Spankey Drainage and
Levee District, Greene
County, Illinois

SCOPE OF WORK

1. Statement of Work. The work to be accomplished by the Contractor consists of furnishing all labor, supplies, material, plant, equipment, if required, and all personnel necessary to perform a cultural resource survey within selected portions of the Eldred and Spankey Drainage and Levee District, Greene County, Illinois, and furnish a written report thereon, all as set forth in this Appendix A.

2. Location and Description of the Study Area. The project area is situated on the left (east) bank of the Illinois River between River Miles 24.0 and 32.2 and includes all ground surface areas within 125 feet of either side of the centerline of 23 existing or proposed interior drainage ditches/borrow pits within the Eldred and Spankey Drainage and Levee District. The existing drainage ditches are marked in orange and proposed drainage ditches/borrow pits are marked in black on Map 1 (Incl 1). The total area to be physically surveyed consists of 370 acres more or less of selected bottomland.

3. Study Plan.

3.1 General. The Contractor is responsible for the formulation, justification, and conduct of the study to include the design and execution of all survey methods and procedures as well, as the presentation of the study results, unless otherwise set forth in this Appendix A, all to be included in a written report as set forth herein. In 1977 the Foundation for Illinois Archaeology completed a cultural resource survey and testing program adjacent to the existing levee within the project area. The results of these investigations were presented in a report titled A Cultural Resource Survey of the Eldred and Spankey Drainage District Project Area, Greene County, Illinois by Kenneth B. Farnsworth. This report is on file at the St. Louis District and with the Illinois State Historic Preservation Officer, as well as several other libraries

and archaeological research centers in the area. This survey resulted in the identification of 26 archaeological sites which represented remains of occupations that spanned the Late Archaic through historic cultural periods.

3.2 Research Design. The Contractor will prepare a research design (that will be fully reported in response to the request for quotation) and conduct a cultural resource survey in the study area as defined in paragraph 2 above. The research design shall describe the methodologies to be used to address the various requirements of the Scope of Work. One completed copy of the Contractor's proposal, including the research design and price is to be postmarked for return to the Contracting Officer for review within 20 calendar days of receipt of the request for quotation.

3.3 Definitions.

3.3.1 Cultural Resource Survey. A cultural resource survey is an intensive on-the-ground evaluation of an area sufficient to determine the number and extent of the resources present with that area. The cultural resource survey is to be conducted at selected sites within the areas marked on Map 1 (incl 1). A random surface collection will be conducted on each site identified during this process. These collections will be analyzed in an attempt to determine each site's temporal affiliation and horizontal surface distribution. All artifacts collected will be washed and appropriately labeled.

3.3.2 Principal Investigator. The principal investigator is required to spend 10 percent of the total field time directly involved in the fieldwork. Adequate time will be devoted to the contract to accomplish the work in an expedient manner. He will be responsible for the validity of the material presented in the cultural resource report and will sign the final report. If authored by someone other than the principal investigator, he will prepare a forward in the final report. In the event of controversy or court challenge, the principal investigator will testify on behalf of the Government in support of the report findings. Persons in charge of an archaeological project or research investigation contract, in addition to meeting the appropriate standards for an archaeologist, should have recognized expertise in this field and must have a doctorate or an equivalent level of professional experience as evidenced by a publication record that demonstrates experience in field

project formulation, execution, and technical monograph reporting. Suitable professional references may also be made available to obtain estimates regarding adequacy of prior work. If prior projects were of a sort not ordinarily resulting in a publishable report, a narrative should be included detailing the proposed project to the director's previous experience, along with references suitable to obtain opinions regarding the adequacy of this earlier work.

3.3.3 Archaeologist. The minimum formal qualifications for individuals practicing archaeology as a profession are a B.A. or B.S. degree from an accredited college or university, followed by two years of graduate study with concentration in anthropology and specialization in archaeology during one of these programs and at least two summer field schools, or their equivalent, under the supervision of archaeologists of recognized competence. A Master's thesis or its equivalent in research and publication is highly recommended as is the Ph.D. degree. Individuals lacking such formal qualifications may present evidence of a publication record and references from archaeologists who do meet these qualifications.

3.3.4 Consultants. Personnel hired or subcontracted for this special knowledge and expertise must carry academic and experiential qualifications in their own field of competence. Such qualifications are to be documented by means of vitae attachments to the proposal or at a later time if the consultant has not been retained at the time of the proposal.

3.3.5 Institution or Contract Firm. Any institution, organization, etc., obtaining this contract and sponsoring the principal investigator or project director meeting the previously given requirements must also provide or demonstrate access to the following capabilities:

(1) Adequate field and laboratory equipment necessary to conduct whatever operations are defined in the scope of work.

(2) The institution will provide for storage and retrieval facilities for perpetual curation for all artifacts, specimens, records, and other documents of the cultural resource survey performed under this contract. The location of these materials will be stated in the report of this work, and the Contractor will indicate how such materials and records can be made available to other professionals who may

have a need for data derived from the work conducted under this contract. All boxes containing artifacts collected during these activities will be marked: PROPERTY OF U.S. GOVERNMENT. ST. LOUIS DISTRICT. CORPS OF ENGINEERS.

3.4 Final Report. The Contractor will prepare a written report which describes in detail data collection techniques used, as well as an explanation of the rationale for their use. The final report will consist of a summary of the results of the previously completed background and literature search, as well as the detailed findings of the survey. It will include a photographic log of each phase of work performed in this Appendix A. Thirty-five (35) millimeter slides are required for this documentation. U.T.M. coordinates of each site identified will be presented as part of the overall site description. The report will contain an abstract not to exceed one typewritten page. Completed site forms (Illinois State Museum) will be submitted for each site identified during these investigations. A random surface collection will be conducted on each site identified during the pedestrian survey. These collections should attempt to determine each site's temporal affiliation and horizontal surface distribution. The report will include maps which accurately define site locations, site numbers, areas surveyed, and groundcover conditions, as well as any other relevant data pertaining to this resource. Plates/drawings of diagnostic artifacts will be incorporated into the body of the final report or attached as an appendix. A full set of reproducible copies of all maps, plates, and drawings will be included in Appendix A in the final report. Survey information such as ground cover, areas surveyed, and surface distributions should be clearly illustrated on appropriate USGS quadrangle maps, scale 1:24000. High quality hand lettering is acceptable within the body of this report; however, no color pen or pencil will be accepted. Only black ink or other blackline methods will be used to prepare and to record data on base maps. Oversize maps will be folded and included in a pocket in the back of the appropriate section of the report or Appendix A thereof. Specific locations of sites found or otherwise identified as a result of investigations under this contract that might be subject to vandalism are to be submitted by the Contractor as a separate document, apart from but with the final report, and marked "Not for submission to NTIS."

4. Protection of Natural and Historic Features. The Contractor will be responsible for all damages to persons and property which occur in connection with the work and services under this contract without recourse against the Government. The Contractor will provide the maximum protection, take every reasonable means, and exercise care to prevent damage to existing historic structures, roads, utilities, and other public or private facilities. Special attention will be given to historic structures, natural and landscape features of the area, and special care will be taken to protect these elements in their surroundings.
5. Property Damage. The Contractor will restore to the satisfaction of the Government's representative at no additional cost to the Government any damage to any Government or private property.
6. Publicity. The Contractor will not release any materials for publicity without the prior written approval of the Government representative. This provision will not be construed so as to restrict in any way the Contractor's right to publish in scholarly or academic journals. Students and other archaeologists are likewise free to use information developed under this contract in theses and dissertations or in publications in scholarly or academic journals.
7. Permits and Right of Entry. The Contractor is required to secure the right of entry upon the worksite for performance of work under this contract. The Contractor will obtain the necessary approval to enter on any private property and to permanently remove any artifacts recovered during subsequent survey activities. Should access to certain portions of the project area referenced in paragraph 2 above be denied, the actual amount of the purchase order as indicated in Block 25, Form DD 1155, will be decreased in an amount equal to the percentage of difference between the original required acreage and that acreage actually surveyed.
8. Field Conditions. The majority of acreage within the project area is presently fall-plowed. Ground visibility should be good in these contexts.
9. Investigation of Field Conditions. Representatives of the Contractor are urged to visit the areas where work is being performed and by their own investigation satisfy themselves as to the existing conditions affecting the work to be done. Any prospective contractors (including subcontractors) who choose not to visit the area will nevertheless be

charged with knowledge of conditions which a reasonable inspection would have disclosed. The Contractor will assume all responsibility for deductions and conclusions as to the difficulties in performing the work under this contract.

10. Inspection and Coordination. Government representatives may at any reasonable time inspect and evaluate the work being performed hereunder and the property on which it is being performed. If any inspection or evaluation is made by the Government on the property of the Contractor or any subcontractor, the Contractor will provide and will require his subcontractor to provide all reasonable facilities and assistance for the safety and convenience of the Government representatives. All inspections and evaluations will be performed in such a manner as will not unduly delay the work. Close coordination will be maintained between the Contractor's Principal Investigator and the Government representative to ensure that the Government's best interest is served.

11. Responsibility for Materials and Related Data. Except as otherwise provided in this contract, the Contractor will be responsible for all written materials and related data generated by this contract until they are delivered to the Government at the designated delivery point and prior to acceptance by the Government. The designated delivery point is 210 Tucker Boulevard, North, Room 1138, St. Louis, Missouri 63101, ATTN: Mr. Terry Norris (ED-BA).

12. Schedule of Work.

12.1 Fieldwork. All fieldwork related to this work item will be completed on or before 1 March 1981.

12.1 Draft Report. Five copies of the draft report will be submitted by the Contractor to the Government representative within 120 calendar days after the notice to proceed. The Government representative will review the report for compliance with the requirements of the contract and will return the preliminary report, together with any written comments he may have thereon which may require changes in the report, to the Contractor within 35 calendar days after its receipt. The report will be organized in a manner consistent with the St. Louis District report format guidelines (Incl 2).

12.2 Final Report. The Contractor will submit 30 copies of the final report, including the original copy signed by the principal investigator,